GEOGRAPHIC SCHOOL BULLETINS

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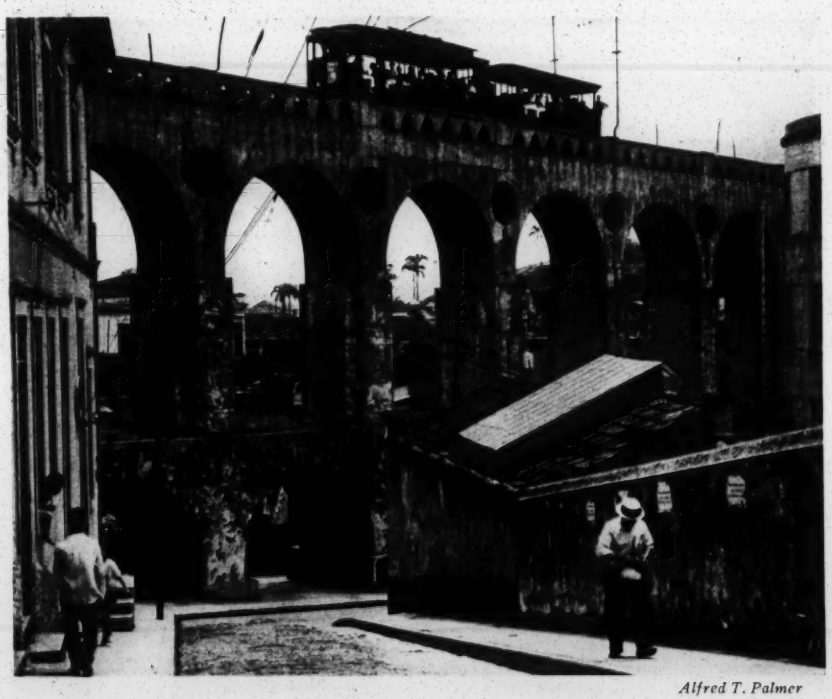

Alfred T. Palmer

RIO MIXES OLD AND NEW IN A SETTING OF NATURAL BEAUTY

The second-largest city of the Southern Hemisphere, Rio de Janeiro, curves around a blue bay of remarkable scenic beauty. The bold mountains rising from the water include Corcovado (The Hunchback) and Pão de Assucar (Sugarloaf), 1,300 feet high. Improvements have eliminated from the modern water system the old aqueduct, built in 1750, to carry water between two of the city's hills. It now serves as an unusual arched bridge for street cars. Rio is in the Federal District, which, like the U. S. District of Columbia, is the capital of Brazil, largest of the Latin American Good Neighbors (Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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General Headquarters, Washington, D. C.

Thumbnail Gazetteer of Embattled French North Africa

AGADIR. Morocco's southernmost port, 265 miles south of Casablanca on the Atlantic, Agadir is an old fishing town with some 6,000 people. When Morocco was on the verge of submitting to France in 1911, Germany used Agadir as a base for organizing opposition, until bought off with Congo territory.

MOGADOR. Rising spotless above sandy Atlantic shores, the walled town of Mogador is called "Es Suirah" (The Picture) by admiring Moors. Its 15,000 inhabitants are mostly Moslem Moors and Jews, with a few Frenchmen. Its military airfield is a mile southwest. It has bus service to Agadir, Casablanca, and Marrakech to the east, Morocco's second-largest city. The town was built by Morocco's sultan in 1765 as a rival to Agadir and Safi.

SAFI. This is the Atlantic port for inland Marrakech's 190,000 people. Of Safi's 25,000 inhabitants, most are Moors, fewer than 2,000 being Europeans. A railroad links Safi with Marrakech and Casablanca. Founded by Canaanites, it was named Asafi by Carthaginian settlers after their chief sanctuary. The Portuguese held it from 1508 till the Moors arrived in 1541.

CASABLANCA. The chief western station of a railroad running through the three countries of French North Africa, Casablanca is also Morocco's leading port and largest city. Its 350-acre harbor handles more than half of the country's exports and 70 per cent of the imports. Since France took possession 35 years ago, the port has received some $65,000,000 worth of harbor improvements, and the tonnage of shipments has increased more than 15 times. Of its 257,000 population, nearly a third are European. The name means "White House."

RABAT. Morocco's political capital, Rabat occupies the angle between the Atlantic shoreline and the south bank of the Bou Regreg at its mouth. The city, with 84,000 people, is one of the four seats of the Sultan of Morocco. It is some 800 years old, founded as a "camp" (*rabat*) by Moors exulting over their conquest of Spain. Its ancient watch towers look down on the ocean and on Salé across the river, Rabat's older, eclipsed sister city.

PORT LYAUTEY. This modern city of 20,000 people lies 12 miles up the Sebou River from the Atlantic, about 100 miles south of Gibraltar. Now the second-busiest and best-sheltered port of Morocco, Port Lyautey did not exist before 1913. Marshal Lyautey founded it as Kenitra, and before his death it was renamed in his honor. In addition to regular service from its airport, the port has rail and highway connections with Casablanca, Fez, and Meknes.

ORAN. With one of the finest natural harbors on North Africa's coast, Oran ranks second only to Algiers among Algeria's cities. Frenchmen and Spaniards comprise three-fourths of its 200,000 people, whereas in most Algerian towns the natives outnumber Europeans five to one. French-ruled since 1831, Oran has business streets that are typically French, with five-story stucco apartments over ground-floor shops, and many open-air cafes. The naval base at Mers-el-Kebir, on the Gulf of Oran, is five miles west of the port.

ALGIERS. The largest city in Algeria, with 252,000 people, this is one of the leading French African bases on the Mediterranean (illustration, next page).

PHILIPPEVILLE. On Algeria's east coast, 80 miles from the Tunisia border, Philippeville has some 65,000 inhabitants. Most of them before the war were Italians and Maltese, outnumbering both the French and the Arabs. There are iron mines and marble quarries near by. The city occupies the site of the

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SOUTH AMERICA'S UNITED STATES, BRAZIL, TOUCHES ALL THE CONTINENT'S COUNTRIES EXCEPT TWO

Like the U. S. A. to the north, the United States of Brazil is a federal union, of 20 states, a federal district, and a territory. Its vast area shares borders with every South American country except Chile and Ecuador. The man for whom the Americas were named, Amerigo Vespucci, explored Brazil's coastline in 1501. The frequent use of the til to indicate a nasal sound, as in São (Saint), and João (John), is a sign that Brazil is Portuguese-speaking. Its name comes from Brazil-wood, a dye wood which was its first important export. All the large cities, in addition to Rio, are near the coast: São Paulo, with 1,120,000 inhabitants, the world's busiest coffee port in normal times; Recife (formerly Pernambuco), Brazil's third largest, with nearly a half-million inhabitants; Salvador and Porto Alegre, with more than 300,000 each; Belém, the Amazon's big port, once famous as Pará, with 293,000; Fortaleza, Maceió, Nictheroy, and João Pessóa, with more than 100,000 each. Curityba, with 117,000, is the only inland city of comparable size. Most prominent feature of Brazil's geography is the Amazon system, which pours more water into the sea than the Mississippi plus the Nile and the Yangtze. Several of its numerous tributaries, such as the Xingú, flow through jungle that is unexplored. The plateaus, such as the Planalto de Matto Grosso and the Planalto do Brasil, are richly forested.

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Brazil: South American Giant

(This is the first of a series of bulletins and maps on the republics of Latin America.)

BRAZIL—the rich but still largely undeveloped giant of South America—is some 3,275,000 square miles big (map, inside cover). It is larger by 253,000 square miles than the United States; yet its population is estimated at less than 45,000,000 people—little more than Italy's. About three-fourths of the Brazilians live within a hundred miles of the Atlantic coast. This is the only Portuguese-speaking nation of the Western Hemisphere.

Brazil is a country of geographic superlatives. Its Amazon River system is the world's largest. It has tremendous water power possibilities, Iguassú Falls alone having a drop 40 or more feet greater than that of Niagara. Brazil's cosmopolitan capital, Rio de Janeiro, called by many the world's most beautiful city, holds nearly two million people (illustration, cover). In the country's interior is the Western Hemisphere's greatest expanse of forest and jungle. Much of this sprawling wilderness is unexplored, inhabited by leaping, creeping, crawling, and flying things, from monkeys to jaguars, butterflies to boa constrictors.

Brazil's Emperor Was United States' First Visiting Sovereign

Brazil, almost entirely south of the Equator, has summer when northern countries are in winter. Though most of the country is tropically hot and moist, it has some cold weather and even snow in the southern uplands.

From Brazil came the first ruling monarch to visit the United States—the emperor, Dom Pedro II, who attended the Philadelphia Exposition in 1876. Seeing the telephone there for the first time, exhibited by its inventor, Alexander Graham Bell, he ordered phone service for his home in Rio de Janeiro. Thirteen years later, a bloodless revolt overthrew Dom Pedro and set up the Brazilian Republic, ending the only line of European royalty established in the Americas.

Indians Are Relatively Few

Tolerant Brazil is today a mixture of races, white, black, yellow, and red. But its Indian population is relatively small, now estimated at a million and a half, or almost twice the number believed living there when the Portuguese made their first permanent settlement in 1532. The Negro element was later introduced as slave labor for a country which lacked Indian masses such as served conquering Spaniards elsewhere in Latin America. By 1850, 38 years before slavery was abolished, Brazil had about 3,000,000 slaves.

Meanwhile European immigrants were welcomed. Between 1820 and 1938 more than 4,500,000 immigrants entered Brazil. Most were Portuguese, Italians, and Spaniards; other nationalities included 222,000 Germans and 180,000 Japanese who set up their own communities, chiefly in the south.

Physically, Brazil falls into four divisions: the narrow coastal lowlands; the highlands and rolling mountains of the east; the interior tablelands, merging into the plains of the continent's great central depression; and the broad Amazon valley, its jungles tangled with vines and creepers, decorated with orchids.

The South American colossus is the American country nearest to Africa. Natal, near the tip of the low coastal plain of Brazil's eastward bulge, is only 1,860 miles from Dakar.

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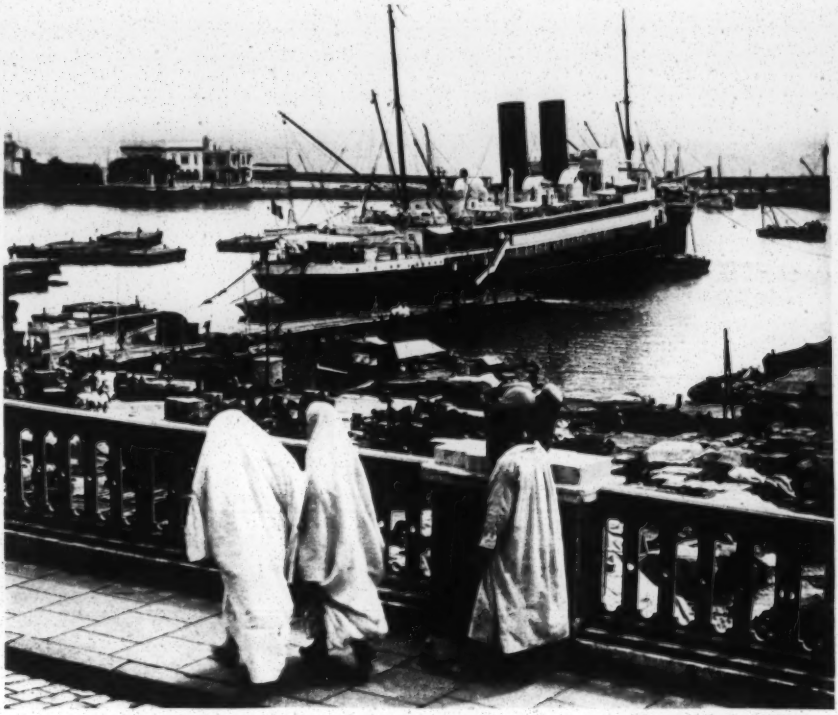
ancient Roman town of Rusicade. Now many of the theaters, apartment houses, and other buildings rise above sturdy stone Roman-built water cisterns, still usable.

BÔNE. Third among Algeria's ports and a French naval base, Bône (Bona) is a typical French seaport of 85,000 people. Sixty miles west of the Tunisia frontier, 270 miles east of Algiers, its modern development dates from 1833, when it passed from Arab to French control. Iron and phosphate mines stimulated improvement of the harbor. Bône flourished as Hippo Regius under Rome.

BIZERTE. France's leading naval base in North Africa, Bizerte commands the central narrows of the Mediterranean, as it is only 120 miles from Sardinia to the northwest and 150 miles from Sicily to the northeast. Bizerte has three harbors—an outer harbor protected by jetties thrust into the Mediterranean; the Bay of Sebra, reached by a narrow canal; and Bizerte Lake, a 50-mile expanse deep enough for the largest battleships. The fortifications and defenses of Bizerte have earned it the title of a French Gibraltar. The city's population was 28,500.

TUNIS. Less than 10 miles from historic Carthage and about 40 miles south of Tunisia's chief naval base at Bizerte, Tunis stands beside a shallow lake through which a narrow 6-mile ship channel has been dredged to the sea. While most of the 220,000 people are Moslems, there are almost 50,000 Frenchmen and an approximately equal number of Italians.

Bulletin No. 1, November 30, 1942.



Maynard Owen Williams

AFRICAN WOMEN AND FRENCH NAVAL STRENGTH ARE BOTH VEILED IN ALGIERS

The French tricolor flies from the vessel anchored in Algiers' inner harbor, where barrels, boxes, and canvas-covered piles of supplies await ships for France. In the past most Algerian shipments have gone to Marseille, chief French seaport. About halfway between the Algerian frontiers of Morocco and Tunisia, Algiers is less than 400 airline miles across the Mediterranean from France. With a moderate climate, the city is a curious mixture of modern French city life and unchanging Arab customs, such as the veiling of women. The European part of Algiers has theaters, big hotels, open-air cafes, and up-to-date shops along broad paved avenues. The naval base, not far from the commercial harbor (above), could not be photographed.

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Silk Salvage Completes a Stocking Cycle

WHEN silk grew scarce for stockings last year and nylon began to vanish, women learned that America's war effort needed these materials for parachutes and powder bags. Now, even worn-out silk and nylon hose are hearing the call to war, because they can be used in the soft nubbly silk bags that hold sharp-cornered chunks of compressed powder for firing big guns. Some powder bags are as large as a sack of flour. Silk and nylon qualify for this battle duty because they burn more quickly and completely than other fabrics, without leaving smoldering wisps to ignite the next powder charge prematurely.

As they enlist today in the artillery, the worn remnants of rapidly disappearing silk stockings round out a brief but flashing era of prominence on the American scene. When the United States entered the twentieth century, silk stockings were a rarity. Only one woman out of two thousand wore them. In 1899, ruffled skirts swept the sidewalks, and the total American output of silk hose was 150,864 pairs (for the twenty-four million womenfolk fifteen years old and over in the nation).

A silk stocking in those days was less a utility than a luxurious decoration. Some of them were hand-embroidered in dainty blue forget-me-nots over the instep; some of them glittered with designs in iridescent beads.

Silk Stockings Grew Longer as Skirts Grew Shorter

But the revealing slit and hobbled skirt of the year 1914, ushering in the new brevity of First World War fashions, opened in earnest the silk hose era, now hastened to its close by a second world war. The stocking output in 1914 was more than five times as great as that of five years previous.

Many stockings worn during this period, while skirts were still relatively long, were silk for only about half their length, with cotton tops. Some of them had silk of a contrasting color inserted clocklike at the ankles.

The diminishing skirt through the 1920's and 1930's increased both the silk hosiery output and the amount of silk in each stocking. Production in 1939, before nylon hose entered the 1940 picture and scarcity appeared in 1941, was 640,486,000 pairs.

When Men Wore Silk Hose, Women Wore Silk Shoes

Another striking change in the history of silk stockings has been the customer shift—from men to women. In America's Colonial days of powdered wigs, candlelight, and duels, silk stockings were most in evidence as masculine finery. Wealthy colonists, with short knee-breeches and long ripple-tail coats, copied the English fashion of red and blue silk hose with clocks embroidered in gold and silver thread.

A pair of clocked stockings then might cost twice as much as a coat. Portraits attest the popularity of white silk hose with George Washington and other Revolutionary founding fathers. Meanwhile, a record of Martha Washington's order for new clothes from England shows that she thriftily used only one pair of silk hose to ten of cotton. But the ladies of that period evened things up by wearing silk shoes.

The long-trousered 19th century, with its daring new masculine costume known as "pantaloons," brought decades of almost total eclipse to the silk stocking.

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For the United Nations Brazil is a valuable source of a number of war's "strategic materials," such as high-grade manganese and block mica. It has almost a monopoly on quartz crystal, essential for radio. Its industrial diamonds make factory tools. Its rich iron ore is to be used for steel; its deposits of chromium, a steel alloy, are rated the most extensive of South America.

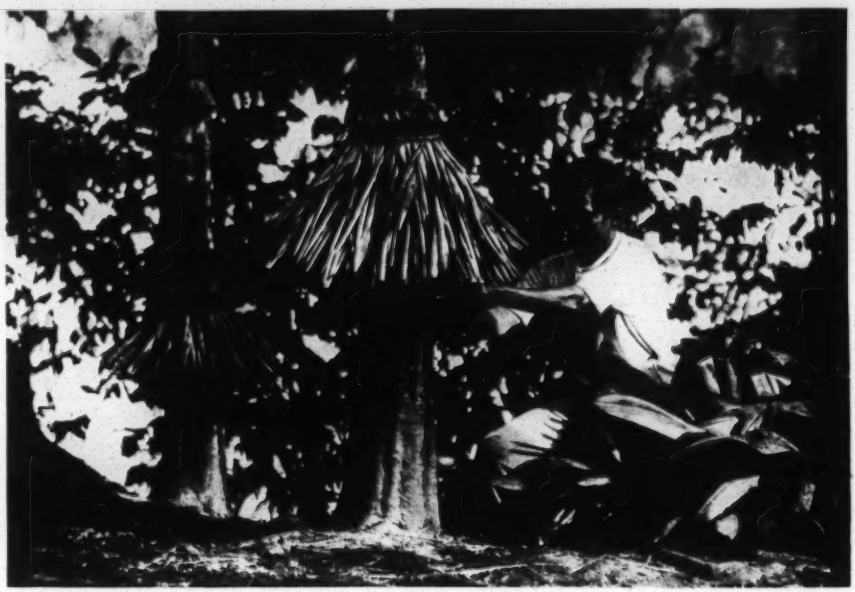
From Brazil's forests came the trees from which the Far East's great rubber plantations developed. The republic accounts still for most of Latin America's limited rubber supply, yielding some 16,000 tons in 1939. It is the world's leading coffee source, with plans now for turning surplus beans into plastics. Cacao, sugar, tobacco, cotton, and corn are other rich crops.

Brazil's industries are led by cotton textile mills, and include wool, jute, and paper factories, as well as metal works and meat-packing houses. A modern steel industry—largest of the hemisphere south of the Equator—is developing, aided by funds from the United States.

Note: Brazil is shown on the National Geographic Society's new Map of South America, which was issued as a supplement to the October, 1942, *National Geographic Magazine*. This map will be an invaluable aid in studying the Latin American series now beginning. A price list of maps may be obtained from the Society's headquarters in Washington, D. C.

For further information on Brazil, see these articles in the *National Geographic Magazine:* "Air Cruising Through Brazil," October, 1942; "Rio Panorama," September, 1939*; "As São Paulo Grows," May, 1939*; and "Wonder Island of the Amazon Delta," November, 1938*; and the following GEOGRAPHIC SCHOOL BULLETINS: "Amazon, Largest 'Father of Waters,' Celebrates," February 16, 1942; and "Brazil's Airports for Transatlantic Plane Ferrying," October 13, 1941. (Issues marked by an asterisk are included in the special list of *National Geographic Magazines* available to teachers at 10¢ each in groups of ten.)

Bulletin No. 2, November 30, 1942.



Ernest G. Holt

GRASS SKIRTS ARE A "BUMPER" AGAINST BRAZILIAN ANTS THAT EAT TREES

The anteater of Brazil, with his elongated nose and dead-grassy appearance, is familiar to many zoo visitors in the United States. But the ant is an important and less familiar member of Brazil's animal kingdom. At Tabacol on the upper reaches of the Rio Negro, the orange trees are attacked by leaf-eating ants that can chew off every leaf of a tree overnight. These petticoats of palm thatch, however, discouraging the ant trying to make his way up the tree, turn him back, saving the foliage. Cuttings from Brazil were the foundation on which the extensive navel orange groves of California have grown. Other foods for which the U. S. is indebted to Brazil are cacao for chocolate, bananas, and Brazil nuts.

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New Map of Asia and Europe Covers All Major Battle Grounds

IT MAY be a surprise for many people to learn that all the chief battle regions of this war, which is more truly world-wide than earlier struggles, can be rounded up on a single map. The Solomon Islands in the Pacific sector, America's Indian bases in Asia, Egypt and the French colonies in Africa, the Volga and Caucasus fronts in Europe—all appear on the new ten-color wall map of Asia and adjoining areas just issued by the National Geographic Society. It frames the vast area from the British Isles and Morocco eastward to the Aleutian Islands and the Solomons.

Titled "Asia," the map covers also Europe (which, to geographers, is merely the western peninsula of Asia), all of North Africa and large eastern and central segments of that continent, the northern half of the Indian Ocean, and a considerable area of the Pacific. There is little, however, of the Atlantic, which had already been covered by the National Geographic Society's map of the Atlantic Ocean and parts of the four surrounding continents.

Three-Quarters of World's People Live in Lands on Map

Because of the lively interest in maps stimulated by the rapid movements of battle campaigns, the National Geographic Society has stepped up its map program this year. During 1942 it has distributed approximately six million maps from its headquarters in Washington, D. C. Thousands of these have gone to battle areas and to sea with members of the Army, the Navy, and the Marine Corps. News stories from the Southwest Pacific have told repeatedly of small groups of refugees—and in one case a United States Navy vessel, its charts destroyed—navigating to safety with the guidance of one of these widely distributed maps.

On the new map of Asia and Europe, the area covered amounts to 65,000,000 square miles, about two-thirds of the world's northern half and large areas south of the Equator. The lands on the map are the home of more than three-quarters of the entire population of the globe. The homelands of some of them are so little known as to sound imaginary—Tannu Tuva, Trucial Oman, Ruanda Urundi.

Covering so vast an area, the map uses a great variety of terms in native languages for the same geographic feature; so a table of geographic equivalents is supplied. Deserts—of which the world's two largest appear on the map, the Sahara and the Gobi—may be *erg, hamad,* or *kum. Lough* in a Scottish place name indicates "lake," as does *nor* in central Asia, *ozero* in Russia, *hu* in China.

Vital Railroads and Highways Shown

Asia, besides being the largest of the continents, has also been the "longest" in terms of travel time until recently. Asia's distances encouraged the domestication of the horse; its plodding prehistoric caravans developed the camel for the rest of the world. On the continent which has been using slow foot-power transportation, new means of communication are especially important. The new map shows the motor highway route of the Burma Road (at present blocked by Japanese) and the old overland silk route extending from central China north of Tibet to the neighborhood of the Caspian Sea by which (in reverse direction) a considerable stream of American supplies has been moving to China since the Burma Road was lost.

Also indicated are the relatively new and vital railway extending from the

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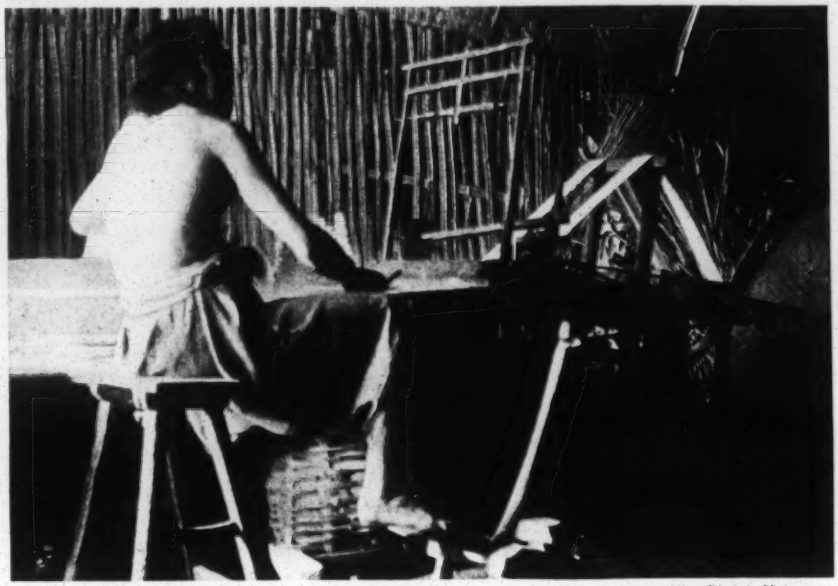
As late as 1879, American industry's chief bid for silk stocking trade was silk thread on spools, which was recommended to ladies for knitting hose to present to their favorite clergymen.

Although Ipswich, Massachusetts, claims to have operated the nation's first knitting machines, in the 1820's, the State of Pennsylvania later became the center of the vast stocking industry that developed from a silk thread. In 1899 the steel fingers of Pennsylvania mills knitted half the small American output of silk stockings; in 1909 they knitted a third. This State, where Benjamin Franklin sponsored an early interest in silk, still had the largest percentage of the United States' thousand hosiery mills when war shortages cut off their silk supply.

Note: Bulletins on silk appearing in the GEOGRAPHIC SCHOOL BULLETINS include: "Strategic Materials: No. 8, Silk Now Goes to War," October 6, 1941; and "A Silk Thread Links American Worker to Oriental Worm," February 21, 1938.

Bulletin No. 3, November 30, 1942.



Alice Tisdale Hobart

SLOW REELS AND RACING MACHINES TWISTED SILK TO WAR STRENGTH

No longer buying silk from Japan, formerly the chief source, the United States is appealing for worn-out silk stockings to supply material for powder bags. It is difficult to get the silk still being produced in western China, where patient workmen use crude wooden implements to prepare the precious thread. Unrolled from the silkworm's cocoon, the delicate filaments are wound by foot-power on a wooden reel (above), then tied into lustrous natural-colored bales of skeins for shipment. (For making stockings, which took 90 per cent of the silk imported before war broke out, the thread was not dyed until the stocking was complete.) The strength of silk hose comes from the twist of the thread. Two, three, four, or more of the natural silk threads were twisted together cable-fashion, some with as many as 20 turns to the inch. In contrast to the simple implements with which silk is processed in its early stages, the United States hosiery industry, before the war, used knitting machines that operated 45 or 51 tiny flashing needles to each 1½ inch.

BINDERS FOR GEOGRAPHIC SCHOOL BULLETINS

A binder for GEOGRAPHIC SCHOOL BULLETINS which will hold 30 issues (a complete year's edition) is now available. This fabrikoid holder consists of an embossed brown cover with spring jaws. It can be obtained by writing direct to The Albrecht Company, 213 South Sharp Street, Baltimore, Maryland. It is mailed postpaid upon receipt of $1. Money will be refunded if the binder does not prove satisfactory. Your name will be placed on the cover in gold for 15¢.

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Geo-Graphic Brevities

UNION JACK COMES DOWN AS PATOS GOES TO VENEZUELA

PATOS, or Goose Island, long a part of the British West Indies, has been ceded to Venezuela by Great Britain. This is one of the smallest of several islands lying between the mountainous Peninsula of Paria, reaching eastward from Venezuela's coast, and the smaller peninsula on the northwest corner of Trinidad, Britain's island stronghold off South America's north coast. In the 12-mile strait between the tips of these peninsulas—known as the Dragons Mouths because of the dangerous sprinkling of rocky island teeth in its several channels—Patos lies only three miles from Venezuela's shore.

Patos, though unfortified, was valuable to Britain as a possible sentinel at the approaches to Port-of-Spain, capital and chief port of Trinidad. On this large British island the United States now maintains a defense base.

Only a mile long, Patos has an area of less than 200 acres. At its highest point—330 feet—the British Union Jack was raised each day. Two Trinidadians assigned to this duty were the only human residents of the island. Their "neighbors" included five-foot iguanas, smaller green lizards, and wild goats.

The rock structure of Patos and its neighboring islands and peninsulas indicates that Trinidad was once linked with the South American mainland.

Six miles northeast of Patos rises Chacachacare, nearest island on the Trinidad side of the strait and site of a leper colony. Separated by narrow channels are Huevos (Egg) Island, Monos (Monkey) Island, and Gasparee—all resort islands for Trinidadians, with attractive bathing and fishing facilities.

Columbus sailed past these islands when he discovered Trinidad in 1498, and he named the Dragons Mouths Strait.

* * * * *

BALATA GUM, COUSIN OF GUTTA PERCHA, DRAFTED FOR MILITARY SERVICE

MAYBE it seemed just so much hard rubber to you, that tough golf ball cover that took the full force of your hook or slice before you gave your clubs to the scrap salvage drive. It was not rubber, however. In most cases it was gutta percha; in some, it was balata. Dimple or mesh, golf balls will get no more of these useful gums for the duration.

Gutta percha came largely from Borneo, Sumatra, and Java, all now in Japanese hands. Balata, its first cousin from South America, now must do double duty. The War Production Board is restricting all uses of the limited balata supply.

Balata, like gutta percha, is flexible though not elastic. Neither of these gums can substitute for rubber, but both have uses that ease some of the critical demand for rubber. Strong, tough, and water-resistant, as well as nonconductors of electricity, they are invaluable as coverings for ocean cables. They make industrial belting, shoe soles, and dental plates. One of balata's military duties is to make self-sealing fuel tanks for airplanes.

Balata is known to commerce as sheets or blocks of a hard rubbery substance. It is obtained by evaporation and purification of the stiff, milky gum of the balata tree. First exploited about 1860 in the Guianas, on South America's

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Persian Gulf to the Caspian Sea, along which American supplies reach Russia, and the new rail link along the coast from Palestine into the Levant States. A different form of transportation is represented by the great pipe lines from the petroleum fields in Iraq to the Mediterranean.

Notable among the rail and highway systems of North Africa is the military highway, built by Italians, that skirts the Mediterranean along Libia's coast.

To depict such a large area on a flat map, a new projection has been used, known as the transverse polyconic, which is unusually free from distortion. Although this projection has been used since 1900 for small regions, such as a single country, the map of Asia is the pioneer chart using it for an entire continent.

Asia raises the world's loftiest peaks and gouges out the deepest holes in the earth's surface. Mt. Everest lifts its head higher than any other, to 29,002 feet. Its sister peak to the northwest, K2, is 28,250 feet high; to the southeast Kanchenjunga reaches 28,146 feet, and their fellow Himalayas are built on the same titanic scale. The little-known Kunlun Shan, curving north of Tibet, has peaks higher than the highest on any other continent. To the northwest, however, spreads the largest continental "sink"—the depressed basin of the Caspian Sea, much of which is 85 feet below sea level. Farther west is the salty Dead Sea, 1,286 feet below the level of other seas.

Bulletin No. 4, November 30, 1942.

IN SHAKESPEARE'S LIFETIME, THIS WAS A "NEW" MAP OF ASIA

This map was made between 1570 and 1612 and published in the atlas, *Theatrum Orbis Terrarum*, by Ortelius. (Atlas, however, had not yet been applied to collections of maps, which were then known as "theaters of the lands of the world.") Geographical ignorance led to such inaccuracies as portraying a non-existent Mare Scythicum biting into Siberia (Tartaria), omitting the Aral Sea and the peninsulas of Kamchatka and Korea, turning the Caspian Sea sideways (labeled Mar de Bachu, the Sea of Baku), and making Arabia larger than India. Sumatra and Japan are outlined as too fat. The tiny segment of Australia (lower right) is Terrae Incognitae (Unknown Lands). The latest portrait of Asia, civilization's mother continent and home of half of the world's people, has just been issued by the National Geographic Society, a map made on the transverse polyconic projection to lessen distortion.

north coast, the tree is a giant that reaches heights over 100 feet, maturing in thirty to forty years. In British Guiana it is known as the bully tree and the bullet tree, also as beefwood because of the raw-beef color of its timber. It thrives in tropical jungles from northern Brazil and Peru to Panama.

Balata gum forms between the bark and the wood. Indian and Negro laborers draw off the gum by slitting the bark. By felling a mature balata tree, the worker can obtain about three gallons of gum which, after being dried, makes about sixteen pounds for export. By restricted tapping of the standing tree, he can get only a gallon of the milky latex, yielding five pounds of balata, but he can repeat the process every second or third year for many years.

Waste Causes Huge Drop

The Guianas, earliest source of balata, exported three to five million pounds annually from 1910 to 1923, but wasteful practices have reduced later crops. Meanwhile British and Dutch officials made regulations to protect balata trees. They forbade gum collectors to cut the trees down and lengthened the interval between tapping and re-tapping. Forest rangers and land officers policed the industry. But deep in the jungle regulations were easily overlooked by workers paid for each gallon of gum. Destruction of the trees is indicated by the drop in production of the Guianas in 1940 to less than 800,000 pounds.

Disregarding conservation laws, balata collectors attacked Venezuela's jungles in 1906 and for 15 years averaged over 3,000,000 pounds of export balata annually. It is estimated that in this period they left nearly 40,000,000 felled trees to decay in the forest. Venezuela's 1940 export total was under 300,000 pounds.

Northern Brazil, untouched in the early years of balata production, recently has been the outstanding source. Brazil exported over 5,000,000 pounds in 1940—about three-fourths of the year's total for all South America.

In 1940 the United States imported 1,452,000 pounds of balata from seven South and Central American countries. Brazil, chief contributor, sent 61 per cent; Peru, 15 per cent; and Surinam (Dutch Guiana) 13 per cent. Lesser quantities came from Venezuela, Colombia, Panama, and British Guiana.

R. W. G. Hingston

TOUGH BALATA GUM GROWS HIGH

With spikes on his boots, the South American balata-bleeder carries a rope end up the balata tree (sometimes higher than 100 feet), loops it over a branch, and then has it anchored to the ground. He can work along the doubled rope and cut the bark in a pattern of herringbone gashes, from which the balata gum "bleeds."

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